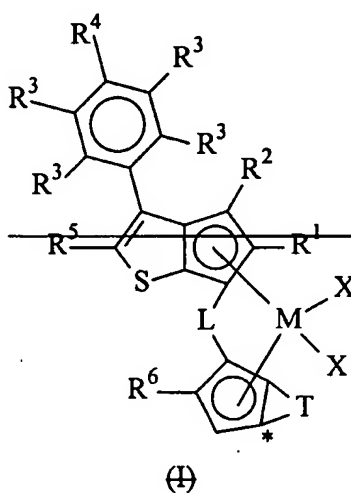
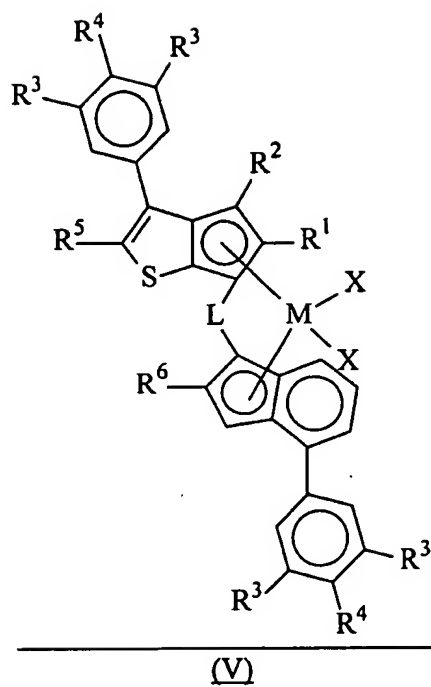
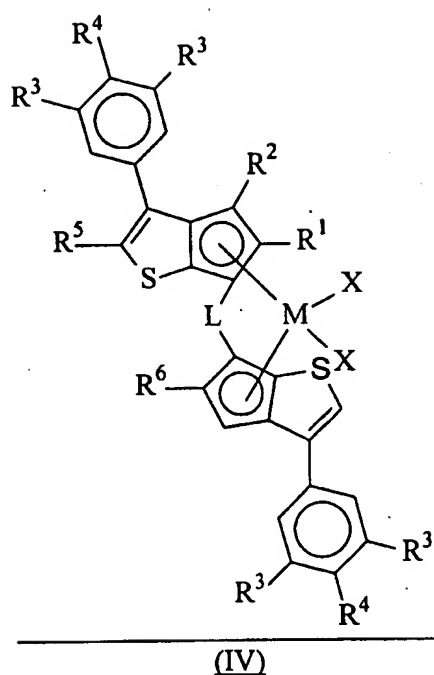


**AMENDMENTS TO THE CLAIMS**

1. (currently amended) A process for producing a polymer of ethylene containing from 0.1 to 99 % by mol of at least one derived unit of alpha-olefins of formula  $\text{CH}_2=\text{CHZ}$ , wherein Z is a  $\text{C}_2\text{-C}_{20}$  alkyl radical, and optionally from 0 to 5% by mol polyene, comprising contacting, under polymerization conditions, ethylene, at least one alpha-olefin and optionally said polyene, in the presence of a catalyst system obtained by contacting:
- a) a metallocene compound of formula (I):



(IV) or (V):



wherein

M is zirconium, hafnium or titanium;

X, equal to or different from each other, is a hydrogen atom, a halogen atom, an R, OR, OR'O, OSO<sub>2</sub>CF<sub>3</sub>, OCOR, SR, NR<sub>2</sub> or PR<sub>2</sub> group, wherein R is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; and the R' substituent is a divalent group selected from C<sub>1</sub>-C<sub>40</sub>-alkylidene, C<sub>6</sub>-C<sub>40</sub>-arylidene, C<sub>7</sub>-C<sub>40</sub>-alkylarylidene or C<sub>7</sub>-C<sub>40</sub>-arylalkylidene radicals; two X can join to form a C<sub>4</sub>-C<sub>40</sub> dienyl ligand;

R<sup>1</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

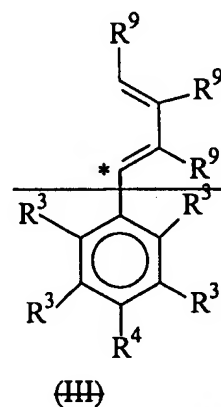
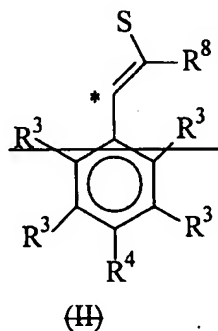
R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup>, equal to or different from each other, are hydrogen atoms, halogen atoms, or linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radicals, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

R<sup>3</sup> is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>10</sub>-alkyl radical, optionally containing at least one halogen atom and R<sup>4</sup> is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>10</sub>-alkyl radical, optionally containing at least one halogen atom, wherein when R<sup>3</sup> is a hydrogen atom, R<sup>4</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>10</sub>-alkyl radical, optionally containing at least one halogen atom, and when R<sup>3</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>10</sub>-alkyl radical optionally containing at least one halogen atom, R<sup>4</sup> is a hydrogen atom;

R<sup>6</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

L is a divalent bridging group selected from C<sub>1</sub>-C<sub>20</sub> alkylidene, C<sub>3</sub>-C<sub>20</sub> cycloalkylidene, C<sub>6</sub>-C<sub>20</sub> arylidene, C<sub>7</sub>-C<sub>20</sub> alkylarylidene, or C<sub>7</sub>-C<sub>20</sub> arylalkylidene radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, or a silylidene radical containing up to 5 silicon atoms;

T is a divalent radical of formula (II) or (III):



wherein

~~the atom marked with the symbol \* is linked to the atom marked with the same symbol in the compound of formula (I);~~

~~R<sup>8</sup> is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;~~

~~R<sup>9</sup>, equal to or different from each other, is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radical, optionally containing at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; and~~

b) an alumoxane or a compound that forms an alkyl metallocene cation.

2. (original) The process according to claim 1 wherein the catalyst system further comprises an organo aluminum compound.
3. (currently amended) The process according to claim 1 wherein in the compound of formula ~~(I)~~(IV) or (V),

X is a halogen atom, an R, OR'O or OR group; R<sup>1</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; R<sup>2</sup> is a hydrogen atom; ~~R<sup>3</sup> is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical optionally containing at least one halogen atom; R<sup>4</sup> is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; R<sup>6</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; and L is Si(CH<sub>3</sub>)<sub>2</sub>, SiPh<sub>2</sub>, SiPhMe, SiMe(SiMe<sub>3</sub>), CH<sub>2</sub>, (CH<sub>2</sub>)<sub>2</sub>, (CH<sub>2</sub>)<sub>3</sub>, C(CH<sub>3</sub>)<sub>2</sub>, C(Ph)<sub>2</sub> or C(CH<sub>3</sub>)(Ph); R<sup>8</sup> is hydrogen or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; and R<sup>9</sup> is hydrogen or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical.~~

4. (cancelled)

- 4-5. (currently amended) The process according to claim ~~[[4]]~~1 wherein, in the compounds of formula (IV) and (V), when R<sup>3</sup> is a hydrogen atom, R<sup>4</sup> is or a group -C(R<sup>7</sup>)<sub>3</sub>, wherein R<sup>7</sup>, equal to or different from each other, is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>8</sub>-alkyl radical; and when R<sup>4</sup> is hydrogen, R<sup>3</sup> is or a group -C(R<sup>7</sup>)<sub>3</sub>, wherein R<sup>7</sup>, equal to or different from each other, is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>8</sub>-alkyl radical

6. (cancelled)

7. (cancelled)

- 5-8. (previously presented) The process according to claim 1 wherein the catalyst system is supported on an inert carrier.

- 6-9. (previously presented) The process according to claim 8 wherein the inert carrier is a polyolefin.

~~10.~~<sup>7</sup> (previously presented) The process according to claim 1 wherein the process is carried out in gas phase.

~~11.~~<sup>8</sup> (previously presented) The process according to claim 1 wherein the alpha-olefin is 1-pentene, 1-hexene or 1-octene.

12. (cancelled)

13. (cancelled)